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Microsoft—The IBM of the 1990s?

American businesses and the computer industry eagerly await an industry giant's announcement of a major new operating system. The announcement has been anticipated for more than six months. The company's new product has been extensively beta-tested and is the subject of innumerable reviews, articles, and opinions. The giant's strength and influence continues to cause competitive rumblings of unfair industry dominance and is forcing consideration of alliances and acquisitions to effectively compete. IBM in the 1970s? No! Microsoft in the 1990s!

What is driving this concern? Microsoft's new client/server operating system—*Windows NT.*

Windows NT Genesis

In the beginning there was *DOS*. Then came *Windows*, and as the business population embraced downsizing and moved away from centralized processing, there was *Windows for Workgroups* with its network orientation. When users began moving to client/server, the architecture of the future, and wanted a familiar user interface and the ability to grow, there was *Windows NT.*

Although the coming was May 24, 1993, genesis actually began in 1989, when *Windows NT* was first brought up on an Intel 860 CPU running IBM's *OS/2*. The 1993 *Windows NT* 3.1 release version offers a group of operating system emulators supported by a common set of services, uses Windows, and favors the MIPS R4000 and various Intel chips. *Windows NT*'s design allows it to adapt easily to any host processor, and initially it will support *MS-DOS*, *Posix*, *OS/2*, *Win16* and *Win32* applications.

What is Windows NT?

Windows NT is a PC-based, 32-bit, client/server operating system with built-in networking capability. Depending upon user requirements, program modules for a user system (in the beta version) will be drawn from four packages, each delivered on a CD-ROM. *Windows for Workgroups* users will find *NT* quite familiar, since it appears as a superset of that product. Users running any *Windows* application will find that Microsoft has taken great pains to maintain compatibility with earlier *Windows* environments.

A key concept is that *Windows NT* is not a *Windows* upgrade running under *DOS* but a totally new operating system with unique capabilities, specifically positioned for the growing client/server marketplace.

Almost every technical journal has done an evaluation of a beta version of *Windows NT.* In addition, thousands of users who asked for beta versions, have evaluated *Windows NT* in their

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own business environment. Opinions have been uniformly positive, with the few criticisms aimed more at functionality and power requirements rather than reliability, cost, or usability.

According to *Windows* and *Windows for Workgroups* users, *Windows NT* is familiar and easy to use, while technical evaluators report that it is difficult, if not impossible, to crash the system. In addition, *NT* eliminates an earlier (now obsolete) requirement that software run on an Intel 286 system. *NT* also removes the strong Intel processor bias, thus allowing it to perform effectively in other CPUs, such as Digital's RISC AXP and the Mips R4000 and R4400 processors. In effect, *Windows NT* implements Microsoft's strategy of moving their applications away from a specific hardware orientation and expands the range of platforms for which it can provide systems and applications software.

Critics complain that *Windows NT* is power-, RAM-, and storage-hungry. Their estimates indicate that, as a server, an effective *Windows NT* system will need the power of the Pentium chip for optimum performance (not just the entry-level 386DX25 minimum system), at least 16 MB of RAM, and storage in the gigabyte range. They also see single-user systems as unnecessarily burdened with system administrator overhead, when no system administrator is needed.

The systems administrator requirement does highlight one potential limitation to *NT's* rapid market penetration. *Windows NT* is a client/server operating system. It is designed to serve multiple power users and be controlled by a system administrator. Identifying and training administrators will be a key user task—one which, if done well, will help to assure the success of the installation. Training takes time, however, and the implementation schedules for many installations will be driven by the availability of trained systems administrators.

Windows NT has a built-in networking capability, designed to act as a LAN manager and to provide networking function without the need for additional software. As such, it offers a significant opportunity for Microsoft to minimize the dominance of Novell's *Netware* in the PC-networking market, since *Windows NT* virtually eliminates the need for a separate network operating system (NOS).

Windows NT also offers excellent program security and can both multitask (run more than one program at a time) and multiprocess (use computers with two or more processors).

NT vs. OS/2 and UNIX

OS/2 is still IBM's PC operating system, with the power of that giant corporation behind it. It also still lacks direction and, like *UNIX*, has a loyal, but small, following. There are function, feature and performance differences between *OS/2*, *UNIX* and *Windows NT* that are favored by some and ignored by others. The fact remains, however, that the largest population of users—those using Microsoft's *DOS*, *Windows* and *Windows for Workgroups*—just got bigger, with the addition of those who will buy *Windows NT*.

The message is clear. If you want to be a successful vendor, develop applications software for the biggest market, which means that smaller markets will not receive the same level of vendor attention and thus are further limited in growth.

Acquisitions and alliances to improve competition with *Windows NT* was mentioned earlier in this bulletin. One such acquisition is Novell's purchase of AT&T's Unix Systems Labs (USL) for $350 million. Novell intends to improve the integration of *NetWare* and *UNIX* in order to better compete in the network operating systems market.

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Windows NT Software Availability

Thanks to extensive and early beta testing, many software developers have had the opportunity to become familiar with Windows *NT*. They have had a chance to examine and use *NT*'s *Software Design Kit* (SDK) and should have an early start in developing applications for this environment. Vendors now committed to providing NT applications include Autodesk, Computervision, Digital Equipment Corp., Intellisoft, Inc., Micrografx, Inc., Microsoft, Oracle Corp., Software Publishing Corp., Symantec Corp., and VisiSoft.

From a vendor's viewpoint, the most significant near-term limit to the size of this market is the availability of processors powerful enough to run the system. The lack of availability of trained user system administrators, and the comparative ease with which a *Windows for Workgroups* can be brought on-line for those with an established or new networking environment, are two other factors that will meter the growth of *Windows NT* users.

What Does It All Mean?

The developer of the most popular PC operating system (*DOS*), the most popular GUI (*Windows*) used for non-MacIntosh PCs, and some of the most powerful and popular PC-based personal productivity applications (*Word, Excel, PowerPoint*) now offers a product aimed squarely at the popular and growing client/server market. With Microsoft's blessing, thousands of beta-test users have already tried *NT*, and software evaluators and designers have been told by a confident Microsoft that it regards the beta version of *NT* as ready for benchmarking.

Windows NT has been a hot item in trade journals for more than six months, and almost everyone has an opinion on it—for the most part, positive. *NT* may be the new kid on the block, but as a Microsoft mainline product, it will almost certainly become a (if not *the*) major player in the PC-based client/server market. Any vendor who ignores the realities of the user's acceptance of Microsoft products does so at their peril. In addition, the list of software vendors preparing products for the *NT* environment will certainly grow with the formal announcement of *Windows NT* on May 24.

Bill Gates, Microsoft CEO, in an interview with the journal *Windows Sources*, noted his belief in the growing corporate user trend towards client/server computing and his conviction that *Windows for Workgroups* will be Microsoft's mainstream corporate product for the next three years, at which time he expects *Windows NT* will assume that role. Gates also noted that Microsoft has concentrated their energies on DEC's Alpha chips, on the MIPS R4000 chip, and on Intel's chips, but that Microsoft's emphasis would continue to be on Intel simply because it is the highest volume chip family.

Gates indicated his recognition of the following important computer trends: Client/server applications; 1993 as a 486 year, with Pentium becoming more important as shipment volumes increase in 1994; more imbedded networking in computers; a growing use of color; flat screens replacing CRTs by 1995 or 1996; more software distribution by CD ROM; improved use of sound (Microsoft is growing its CD ROM library from 10 to 100 titles); and the return *and* acceptance of pen-based computing.

Reprise: Microsoft—The IBM of the 1990s

There are some compelling similarities between today's Microsoft and IBM, both past and present:

- The tendency of product offerings to become *de facto* standards: e.g., Microsoft's *DOS*, *Windows*, and *Windows NT*; and IBM's *MVT*, *MVS*, *VM*, and *CICS*.
- They are regarded as the *safe* choice. If you choose some other vendor and encounter problems, *why* didn't *you* make the *safe* choice?

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- They both make extensive use of client sites to beta-test products.
- Industry alliances are perceived as one of the few ways to compete against their industry dominance.
- Some of their alliances become acquisitions—and the transaction is not always friendly.

On the other hand, there are also some notable differences between today's Microsoft and yesterday's IBM:

- IBM's hardware-based business was and is capital-intensive. Microsoft's software business requires no manufacturing plant or hardware production facility.
- IBM reluctantly unbundled their data processing offerings, opening a closed product environment to vendors who could effectively compete in areas of IBM weakness or niches of opportunity. In many ways, Microsoft is already unbundled and strengthens its position by having other vendors produce products that run under its operating environments (*DOS*, *NT*, *Windows*)
- IBM concentrated on the business/scientific mainframe market and only reluctantly entered the PC (business user and personal computer user) market. Microsoft is aggressively pursuing both PC markets, and has products that function well in both environments. Home PC-users drive office use and vice versa.

Microsoft will be the dominant PC software standards driver for the rest of this millennium, and at this time there is no clear challenger in sight. *OS/2* and *UNIX* will have a place, but only Microsoft's operating systems and GUIs will dominate, which, in turn, will favor their applications suites—which include products such as *Excel*, *Word*, *PowerPoint* and many cooperative software product offerings.

Apple will continue to be popular with educators and MacIntosh will continue to be the major force in graphics-oriented publishing, but in the near term, Apple does not offer a general-purpose commercial product that is likely to be an effective competitor for the *DOS/Windows NT* environment.

The message for vendors is clear. The largest commercial PC-based applications software product market today is for *DOS*-based systems. For tomorrow, that market will also include *Windows for Workgroups* and, for the growing number of client/server applications, *Windows NT*. Ignore it at your peril.

A variation of this observation applies to commercial users. If you want the broadest access to software products, use a PC-based platform with wide acceptance and high market penetration. Again, *DOS*, *Windows for Workgroups*, and *Windows NT*.

Finale

Although Microsoft looks a lot like the IBM of the 1970's, in both size and industry posture, there are fewer visible challengers to its domination of industry essentials, such as the PC operating environment. With a customer base of millions of small users (versus a hardware manufacturer's hundreds or thousands of large users), Microsoft will be difficult to unseat.

A final comparison between today's Microsoft and IBM was suggested by the news media. On the day on which Microsoft officially announced its *Windows NT* product, IBM announced that it planned a $3 billion preferred stock issue to pay for corporate expenses related to higher-than-anticipated cutbacks in its workforce.

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